REMARKS

Claims 1, 4-9, 12, 13, 15-20, 22, 25-28, 129, 135-146 were previously pending in this application.

Claims 1, 9, 136-139 and 141 are amended to delete reference to trademarks. Claim 9 is further amended to correct a typographical error. Claim 136 is amended to recite that the oligonucleotide and antigen are administered to the same site. Claim 138 is amended to add the term passively. Claim 143 is cancelled herewith.

Claims 1, 4-9, 12, 13, 15-20, 22, 25-28, 129, 135-146 are pending for examination with claims 1, 136-139 and 141 being independent claims. No new matter has been added.

Claim Objection

Claim 9 is objected to because one of the terms appears to be incomplete. Claim 9 is amended to correct this typographical error.

Rejection under 35 U.S.C. §112

Enablement

Claim 136 is rejected under 35 U.S.C. §112, first paragraph, according to the Examiner because the specification does not reasonably enable a method for inducing a mucosal immune response in which the oligonucleotide and the antigen are not administered together to the same site. The Examiner acknowledges that the specification enables a method for inducing a mucosal immune response having the steps recited in claim 136 in which the oligonucleotide and the antigen are both administered intranasally, rectally, intravaginally, ocularly, or by inhalation to the subject.

Applicant has amended claim 136 to recite that the oligonucleotide and the antigen are both administered intranasally, rectally, intravaginally, ocularly, or by inhalation to the subject.

Reconsideration and withdrawal of the rejection is respectfully requested.

Indefiniteness

Claims 1, 4-9, 12, 13, 15-20, 22, 25-28, 129, 135 and 136 are rejected under 35 U.S.C. §112, second paragraph, for indefiniteness with respect to the recitation of trademarks in claims 1, 9, 136-

139 and 141. Applicant respectfully traverses since the claims recite not only the trademark but also the generic name of the product to which the trademark refers. Moreover, the trademark is specified as required (i.e., in capitals and with a trademark status indicator). Nevertheless, in the interest of expediting prosecution, Applicant has amended claims 1, 9, 136-139 and 141 to exclude the trademark names of ISCOM and PROVAX.

Reconsideration and withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. §103

Claims 1, 4-9, 12, 13, 15-20, 22, 26-28, 129 and 135-146 are rejected under 35 U.S.C. §103(a) as being unpatentable over Krieg et al. (US 6239116) in view of Hutcherson et al. (US 6727230) or Agrawal et al. (US 6426334) and evidenced by McCluskie et al. (Vaccine, 19: 413-422, 2001).

Applicant respectfully traverses. A prima facie case of obviousness requires a motivation or suggestion or combine the references, a reasonable expectation of success with regards to such combination, and the combination must result in each and every limitation of the rejected claims. A prima facie case of obviousness has not been made at least because one of skill in the art would not have combined the references as suggested by the Examiner and the combination of references does not result in each and every limitation of the rejected claims.

Initially, Applicants point out that the Examiner has misstated the teachings of the Hutcherson patent. According to the Examiner, Hutcherson teaches delivery of a "synthetic or ISIS oligonucleotide containing an unmethylated CpG motif by various administration routes". Applicants disagree that Hutcherson teaches delivery of an unmethylated CpG oligonucleotide. If the Examiner is aware of a place in Hutcherson where use of an unmethylated CpG motif is taught he is respectfully requested to point that out. Hutcherson teaches that an immunopotentiating oligonucleotide analog having at least one phosphorothioate internucleotide bond is delivered to a subject to provoke an immune response. (see abstract, summary of the invention etc).

The Examiner has suggested that the oligonucleotides of Krieg simply be substituted into the teachings of Hutcherson because, according to the Examiner, Hutcherson has taught use of oligonucleotides with a CpG motif. As described above, Hutcherson does not teach one of skill in

the art to use an unmethylated CpG oligonucleotide. Thus one of skill in the art would not combine the references as the Examiner has suggested. A suggestion that one of skill in the art would substitute the sequence specific oligonucleotides described in Krieg in the methods using sequence non-specific oligonucleotides of Hutcherson would be based on hindsight.

Each of the rejected claims requires administration to a subject in need of a mucosal immune response. The Hutcherson patent does not teach subjects in need of mucosal immune responses. Instead, a full reading of Hutcherson shows that it is directed at inducing systemic antibody-mediated or local cell-mediated immune responses. Accordingly the combination of references does not teach administration to subjects in need of a mucosal immune response. The Examiner states that "a subject having an immune system deficiency such as a subject having a cancer or an infection is a subject in need of at least a mucosal immune response" . The Examiner has not provided any evidence to support his statement that such subjects are equivalent.

One of skill in the art would not have combined Agrawal et al with Krieg et al as suggested by the Examiner because there is no motivation to combine the teachings in this manner. Agrawal et al teaches that a CpG containing oligonucleotide be administered to a subject to induce IL-12 levels and thus produce a therapeutic result. Agrawal does not describe the combination of an oligonucleotide with an antigen to produce an antigen specific immune response. The Examiner has suggested that the teachings of Krieg with respect to producing an antigen specific immune response by co-administering an antigen and an oligonucleotide can simply be substituted into the teachings of Agrawal of inducing an IL12 immune response. It is unclear why one of skill in the art would make such a substitution in the absence of hindsight reasoning.

Additionally, the Agrawal patent does not teach subjects in need of mucosal immune responses. Each of the rejected claims requires administration to a subject in need of a mucosal immune response. A full reading of Agrawal et al shows that it is directed at inducing systemic levels of IL12. The teachings indicate that serum levels of IL-12 should be measured after administration of the oligonucleotide. Accordingly the combination of references does not teach administration to subjects in need of a mucosal immune response. The Examiner states that "a subject having an immune system deficiency such as a subject having a cancer or an infection is a

subject in need of at least a mucosal immune response". The Examiner has not provided any evidence to support his statement that such subjects are equivalent.

Reconsideration and withdrawal of this rejection is respectfully requested.

Claim 25 is rejected under 35 U.S.C. §103(a) as being unpatentable over Krieg et al. (US 6239116) in view of Hutcherson et al. (US 6727230) or Agrawal et al. (US 6426334) and evidenced by McCluskie et al. (Vaccine, 19: 413-422, 2001) and in further view of Craig et al. (US 6689757).

Applicant respectfully traverses. The combination of Krieg et al., Hutcherson et al. or Agrawal et al., as evidenced by McCluskie et al. does not render obvious claim 1 for the reasons stated above. Claim 25 depends from claim 1. Craig et al. does not cure the deficiencies in the combination of references. Moreover, Craig et al. requires dual delivery of an epitope or antigen in its peptide or polypeptide form and a nucleic acid encoded epitope. Claims 1, 136-139 and 144 all explicitly recite that the antigen is not encoded in a nucleic acid vector. For at least these reasons, the combination of references does not render obvious claim 25.

Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 136-138 and 142-144 are rejected under 35 U.S.C. §103(a) as being unpatentable over Briles et al. (US 6042838) in view of Krieg et al. (US 6194388) and evidenced by McCluskie et al. (Vaccine, 19:413-422).

Applicant respectfully traverses. A prima facie case of obviousness requires a motivation or suggestion or combine the references, a reasonable expectation of success with regards to such combination, and the combination must result in each and every limitation of the rejected claims. A prima facie case of obviousness has not been made at least because the combination of references does not result in each and every limitation of the rejected claims.

With respect to claim 136, the combination of references does not teach administration of oligonucleotide and non-oligonucleotide mucosal adjuvant via the same route. Briles et al. teaches mucosal administration to the respiratory mucosa, gingival mucosa, alveolar mucosa, perlingual mucosa, sublingual mucosa, or via the mouth or respiratory tract, with intranasal administration being preferred. Krieg et al. however teaches administration by injection, transdermal or oral route.

REMARKS

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Dated: January 12, 2007

Respectfully submitted,

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Thus the only common administration route between the references is oral administration, which is however excluded from claim 136. Accordingly, the combination does not result in each and every limitation of claim 136 (and dependent claim 142), and the claim is therefore not rendered obvious for at least this reason.

With respect to claim 137, the combination of references does not teach administration of viral antigen to subjects in need of a mucosal immune response. Briles et al. teaches administration of bacterial pneumococcal surface protein A (PspA) or immunogenic fragments thereof. Krieg et al. teaches administration of antigens generally. Accordingly, the combination does not result in each and every limitation of claim 137, and the claim is therefore not rendered obvious for at least this reason.

With respect to claim 138, the combination of references does not teach passively exposing the subject to antigen. Briles et al. teaches active immunization with PspA or fragments thereof. Krieg et al. also teach active administration of antigens generally in the context of a vaccine. Accordingly, the combination does not result in each and every limitation of claim 138 (and dependent claim 144), and the claim is therefore not rendered obvious for at least this reason.

Reconsideration and withdrawal of the rejection is respectfully requested.

Double Patenting Rejection

Claims 1, 4-7, 12, 13, 18-20, 22, 26, 129, 135, 137-141 and 143-146 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 145 of co-pending application number 10/888,886.

As this is a provisional rejection and the cited application has not yet been allowed, Applicant reserves rebuttal of this rejection until all other rejections have been overcome.

REMARKS

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Dated: January 12, 2007

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